

## The regional management of fisheries in European Western Waters

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### ABSTRACT

A survey of past and existing management measures applied to different fisheries in European Western waters is analyzed as a typology of co-management between governments and stakeholders. Faced with increasing constraints on accessing fish stocks, management measures have evolved toward fishing rights individualization, limited access and various other specific measures. Restrictions on access have changed fishermen's behaviour in several significant ways. A comparative analysis, based on qualitative data collected through interviews and focus groups, is developed for fisheries from the following European countries: France, Ireland, Spain and the United Kingdom. Past and existing individual harvesting rights in the four countries are reviewed and compared.

**Keywords: Management, Fishery governance, Common Fishery Policy (CFP)**

### 1. Introduction:

Managed under the CFP, the European Western waters fisheries are commercially exploited by fishing fleets from different European countries, including France, Ireland, Spain and the United Kingdom. Various management measures have been put in place, both at national and regional level. At the national level, vessel decommissioning schemes were among the main measures developed in the framework of the first CFP reform (1993-2002). The second reform (2003-2012) was characterised by regional policies such as recovery and management plans.

The European Commission (EC) presented its proposals for the third reform of the EU Common Fisheries Policy (Commission of the European Communities, 2009). These included five main policies: the implementation of discard bans, the objective of Maximum Sustainable Yield by 2015, the regionalisation of management measures, an emphasis on the social dimension and the promotion of Transferable Fisheries Concessions (TFCs). Rights-based management has been presented by the EC as a more efficient management approach to reduce overcapacity and give more responsibility to the industry. TFCs have been promoted at the European level, acknowledging that safeguard clauses could be necessary to avoid concentration of property rights (CEC, 2009, p8). Moreover, relative stability should be progressively replaced by a more flexible tool, “such as allocating fishing rights” (CEC, 2009, p16).

Other management measures, such as individual quotas imposed or negotiated between fishermen and regional professional organisations have been implemented by each of the four countries studied.

The French State has gradually transferred authority for TAC and quota species management to the POs (Larabi *et al.*, 2013). Under the management of sub-quotas by POs, new tools, such as landings limits per vessel have been developed (e.g., for hake, anchovy, sole, mackerel). Ireland has promoted the Celtic Sea Herring Management Advisory Committee, in addition to the North Western Regional Advisory Council, created in 2004 for strengthening dialogue between stakeholders (Fitzpatrick, 2014). In Spain, a system of individual quotas for mackerel and horse mackerel has been introduced for purse seiners since 2013. These individual quotas are not tradable. With respect to the Basque offshore fleets, rights are allocated to individual vessels. POs can pool the individual rights of their members and manage them collectively. Quota transferability is possible within and across POs (Aranda *et al.* 2012). In the UK, the quota management system is similarly largely devolved to the POs, except in the case of inshore vessels (under 10m in length) which are still managed centrally (by the Marine Management Organisation (MMO) in England and Wales). Quota trading is possible within and between POs (Hatcher, 1997; Appleby, 2013).

This paper looks at the experiences from (i) the French fishing fleets exploiting the Bay of Biscay sole, (ii) the Irish fleets targeting the Celtic Sea herring fishery, (iii) the Spanish

Basque purse-seiners exploiting mackerel, anchovy and tuna and the off-shore trawlers targeting hake, megrim and anglerfish, (iv) the Southwest English demersal fishery. Faced with increasing constraints on accessing fish stocks, management measures have evolved for each local case study towards fishing rights individualisation, limited access and other specific management measures.

The paper is structured as follows: Section 2 lays out a conceptual approach to governance in fisheries management, highlighting the main themes involved at a regional level (governance issue, management measures). Section 3 describes the case studies by country across the Western Waters (in terms of species, gears and fleets). Section 4 explains the management governance at an EU and national levels, and inter-relationships between both levels. Past and existing management measures are presented in Section 5 based on stakeholder's experiences for all four countries. Finally, Section 6 presents a discussion of the main results showing progress realized during the second CFP reform (2003-2012).

## 2. A conceptual approach of governance in fisheries management

In the literature devoted to governance issues in fisheries, cooperatives, rights-based management, leadership, social capital and regionalization are the main concepts used to highlight the main academic themes.

One of the major recent trends in the fishing sector has been the increasing role of **fishermen's cooperatives** in quota management (Holland et al., 2013). In France and in the UK, the central administration has gradually transferred the allocation procedures for quotas to POs. In view of quota over-consumption situations, POs have had to introduce new rules within their organizations to impose limitations on individual consumption by species. The implementation of individual fishing rights (France, Spain, UK) or access restrictions (Celtic Sea herring in Ireland) reflects the European debate on transferable fishing concessions (TFC) within the third reform of the CFP.

Several kinds of **rights-based management** exist and quotas can be allocated to the owner, the vessel, but also to a collective i.e. a community or cooperative (Costello et al., 2008). Quota can be spatial and concern one or several species. Their transferability is not necessarily without limits. Overall, a rights-based management system could be adapted to different fisheries. The success of rights-based management, specifically transferable fishing concessions in the new CFP reform (EC, 2013), depends on the governance arrangements which could be a top-down procedure or a regionalized approach (Hegland *et al.*, 2012; Gezelius *et al.*, 2010). Other assets required for better fisheries management such as **leadership** amongst direct users of fisheries (Gutierrez et al., 2011). All attributes related to co-management (cooperatives, **social capital**, leadership, **regionalisation**, right-based management) are key-elements of the institutional arrangements. Table 1 offers a synthesis of an analytical framework for fisheries co-management describing five broad types.

**Table 1.** Typology of co-management

Type of co-management		Relationships	Nature of management
Top-down	hierarchical	Minimal exchange of information	Centralized
management by the state		between government and users	
Co-management	by	Extensive and formal mechanisms	Centralized

consultation	for consultation	
Co-management by partnership	Government and users as decision-making partners	Co-managed
Co-management by delegation	Users as decision-makers, but endorsed by Government	Decentralized
Industry self-management with reversal of the burden of proof	Users as decision-makers, informing Government	Decentralized

Source: adapted from Raakjaer, 2009 and Hegland *et al.*, 2012

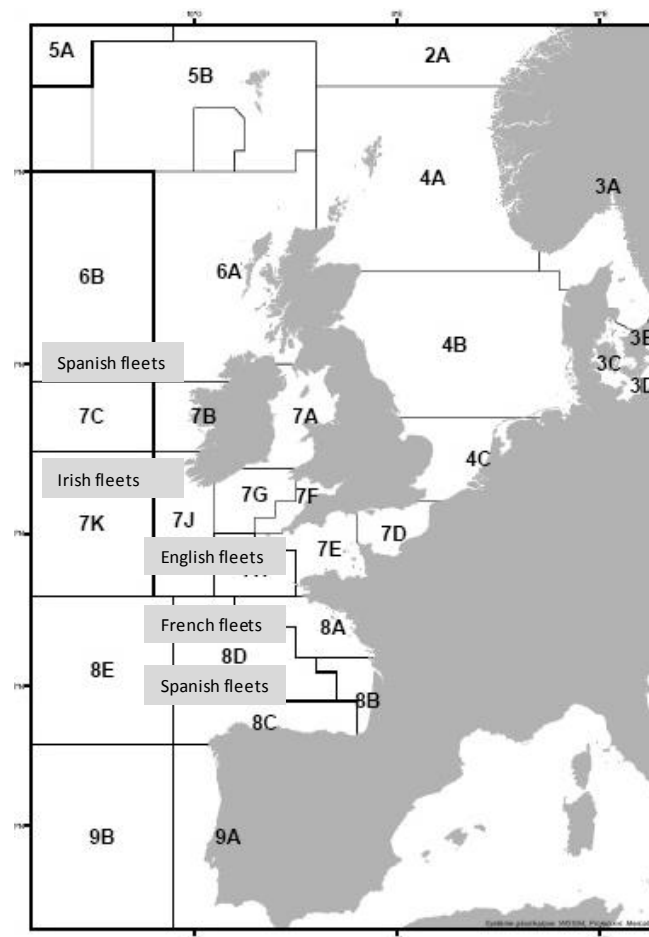
This typology is rooted in the classification proposed by Sen and Nielsen (1996), which considered five institutional arrangements between Government and local stakeholders. Only one type of fisheries management process can be defined as a pure co-management scheme (co-management by partnership), where Government and users of the marine resource (fishermen, processors, non-governmental organizations) act as decision-making partners (Jentoft, 1989). The four other alternatives adopt either a centralized or decentralized procedure. Detailed information on the different case studies follows.

The European research project SOCIOEC is an interdisciplinary, European wide project bringing together scientists from several fisheries sciences with industry partners and other key stakeholders. The case studies investigated under the SOCIOEC research project are the Western Waters fisheries, the Baltic Sea, the Mediterranean Sea and the Black Sea, the North Sea, and the Pelagic fisheries. Non-EU fisheries are included for comparative assessment (Iceland, Australia, New-Zealand). In the case of the Western Waters, four countries (France, Ireland, Spain and UK), are compared for a better understanding of socio-economic effects of the main management principles under the CFP (SOCIOEC, 2012).

A comparative methodology, based on qualitative data collected through interviews and focus groups, is developed for each case study. Lists of past and existing management measures applied in Western waters are analyzed against a typology of co-management between government and stakeholders. Restrictions on fish stocks access have changed fishermen's behaviour in several significant ways. This paper compares the experiences and outcomes of the four different Western Waters nations management approaches in the context of the current CFP reforms.

Spatial distribution of all segments indicates heterogeneous experiences in western waters (**Figure 1**). Spatial dynamics reveal highly different vessel movements at sea. Spanish fleets located in areas VI and VII are subjected to the largest distances. The Herring fishery exploited by the Irish fleets was concentrated on inshore spawning aggregations but fishing activity in the main fishery has moved further offshore in the past few years in order to avoid impacts on spawning fish. The various spatial locations raise specific organizational arrangements. The French and English vessels are concentrated near their own national coastlines.

**Figure 1.** Spatial distribution of fishing effort for the French, the Irish, the Spanish Basque and the English demersal fleets,



Source: Anonymous, 2013

The main characteristics explored through interviews and focus groups are internal factors of regional and local fisheries. These internal factors can be rights and rules adopted by fishermen, their legitimacy and their enforcement compliance, power structures inside institutional and organizational arrangements, and leadership (Gutierrez *et al.*, 2011). These characteristics define decision-making arrangements. Semi-structured interviews and focus groups were conducted at different scales for each sub-case study in France, Ireland, Spain and the UK, with the aim of achieving several objectives: to begin with, qualitative information was collected on fishermen's incentives to change or adapt fishing behaviour in view of tighter constraints for access regulation of stocks. A second issue relates to managers' capabilities. The professional skills and qualifications of local and regional managers are key elements in evaluating their ability to deal with external shocks. Another issue deserving attention in the process of interviews and focus groups is the managers' use of financial resources. New fisheries management measures require new methods of collecting and spending appropriated budgets. Finally, the success and failure of previous and existing management measures are also closely dependent on communication methods between managers and fishermen.

### 3. The fisheries, with particular reference to species, gears and fleets.

Each country is characterized by multi-fleet and multi-species fishing, located in main areas of the European Western waters. Detailed information about fishing areas, fleet characteristics and target species are shown in **Table 2**.

**Table 2.** Characteristics of the case studies

Sub-case	Fishing areas	Fleet	Length range (meters)	Target Species
The French fleets	VIII Bay of Biscay	Bottom trawlers	12-16 m.	Nephrops, Sole, Hake
			16-20 m.	
			20-24 m.	
		Gill-netters	<12 m. 12-16 m.	Sole, Hake
The Spanish fleets	VIII Bay of Biscay	Purse-seiners	20-38 m.	Anchovy, Tuna, Mackerel
		Mixed trawlers	30-43 m.	Hake, Megrim, Anglerfish
	VI/VII	Mixed Trawlers	30-43 m.	
The Irish fleets	VII Celtic Sea	Polyvalent trawlers	15-20 m.	Herring, pelagic and demersal
			20-24 m.	
			>24 m.	
		The sentinel fishery	<15 m.	Herring and shellfish
The English fleets	VII/VIII	Trawlers, netters	10-24 m.	Mixed demersal
			24-40 m.	
		Beam trawlers, dredgers	21 m.	Sole, Plaice, Scallops
			28 m.	

#### French demersal fleets operating in the Bay of Biscay (BoB)

The demersal fishery in the Bay of Biscay is mainly exploited by French fishing fleets with Spanish and Belgian fleets also catching hake and sole in this area. This fishery is of great interest to scientists and professionals (fishermen and other stakeholders). Targeted species include nephrops, sole and hake which are among the 10 most important commercial species (in value) for the French fishing fleets. 700 French vessels of different sizes (less than 10 meters to more than 20 meters) with 2000 fishermen are involved in the Bay of Biscay demersal fishery. These vessels are mostly trawlers and gillnetters. Their total landings amount to 50,000 tons with a value of €270 m yearly, representing more than 30% of the French total landings value. With annual landings between 5,500 to 7,500 tons (€65 to €85 m), sole is one of the three main commercial species at the national level. The BoB landings for sole, mostly for the fresh market, contribute 60% of the sole national landings with a value



of €55 m The French fleet accounts for around 90% of the total landings in the Bay of Biscay sole fishery. French gillnetters are the major contributors to the sole catches, followed by French trawlers (targeting sole, cuttlefish, squid, hake or whiting) and Belgian beam trawlers (exploiting sole in the Bay of Biscay in summertime).

### **Irish fleets targeting Celtic Sea Herring**

There are two distinct Irish fleets targeting Celtic Sea herring. The main fishery, which is allocated 89% of the Irish quota, comprises vessels mainly over 15 meters in length and has a mix of multipurpose vessels which switch between pelagic and demersal species throughout the year and solely pelagic vessels which use refrigerated sea water tanks to store their catch. There is also a small-scale fleet, known as the sentinel fishery, which is allocated 11% of the quota and which can fish inside a specific area closed to fishing by larger vessels in order to protect spawning herring. The numbers of vessels in this fleet have increased from 4 in 2009 to 16 in 2012. The majority of these vessels are approximately 10 meters in length. The main fishery occurs between September and November while the sentinel fishery occurs between November and February. Both fleets (main and sentinel) are multispecies fleets. Many of the smaller sentinel fishery vessels target shellfish with pot fisheries outside of the herring season. The multipurpose vessels in the main fishery usually focus on trawling for mixed demersal species in the Celtic Sea when not fishing for herring while the pelagic vessels also target mackerel, other herring stocks, blue whiting, horse mackerel, sprat, albacore tuna and boarfish when not targeting Celtic Sea herring. All of these vessels fish use the method of pair pelagic trawling.

### **Basque purse-seiner and trawler fleets (BoB and ICES areas VI and VII)**

The “Baka” trawlers of Spain and particularly the Basque country fleet (north-east of Spain) operate in ICES Sub-areas VI, VII and VIII a, b, d. “Baka” trawlers can be defined as a single vessel which trawls a “bottom net” operating in contact with the seabed. These vessels exploit multi-species fisheries targeting mainly, hake, anglerfish and megrim; the average storage capacity is 50 tons. Bottom pair trawlers comprise two vessels trawling a single very high vertical opening net. The main target species is hake. The Basque fleet currently includes 11

otter trawler fishing vessels, with an average length of 38 meters and an average power of 461 kW. A single otter trawler crew is made up of 13 fishermen, with a fleet employing around 143 people. The most important social impact over the last decade is due to the decrease in vessel number. The size of the Basque trawler fleet fell by 60% between 1992 and 2010. Their total landings account for 140,000 tons with a total annual revenue of €290 m. The Basque fleet includes 42 purse-seiners of an average length of 32 meters and an average power of 467 kW. A single purse seiner operates with 12 fishermen, with a fleet employing around 500 people. The fleet is multispecies, distributing its activity across the mackerel, anchovy and tuna seasons. The purse seiners can shift fishing gear to pole and line (using live bait), hand lines and trolling, depending on the species and fishing season. Their total landings amount to 19,000 tons with a total annual revenue of €32m.

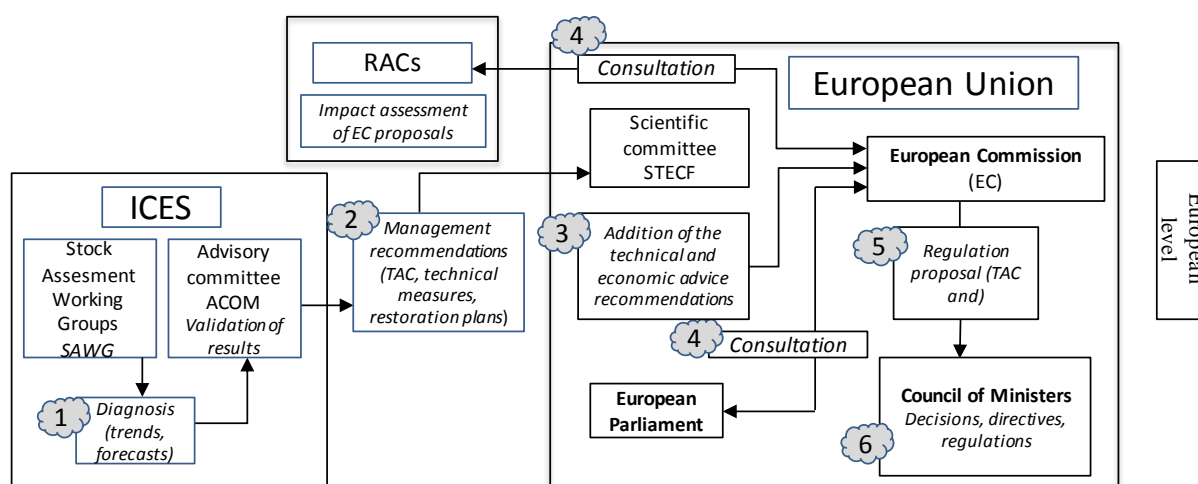
### **SW English demersal fleets**

Most of the UK-registered vessels fishing in Western Waters (ICES sub-areas VII and VIII) belong to two POs: the *South Western Fish Producers' Organisation* (SWFPO) and the *Cornish Fish Producers' Organisation* (CFPO). Between them, these POs represent the majority of fishing vessels based in South West England (principally the counties of Devon and Cornwall), although they both also have member vessels from other parts of the UK. The UK Western Waters offshore demersal fleet includes beam trawlers, demersal trawlers, liners and netters. Main target stocks include sole, plaice, hake, megrim and monkfish. The principal landing ports for SW English vessels are Brixham in Devon (particularly for the SWFPO vessels) and Newlyn in Cornwall (for CFPO vessels). Other important landing ports include Plymouth in Devon and Looe in Cornwall, although landings are also made into French and Belgian ports. Brixham is a major port for beam trawlers landing sole and plaice as well as scallops. There is an important seasonal fishery for cuttlefish. Newlyn also receives significant landings from liners, netters and demersal trawlers catching hake and megrim. These high-value fisheries predominantly supply European export markets such as France and Spain. There are just under 200 vessels in the CFPO, of which around 80 are inshore vessels (10 meters or under in overall length). The SWFPO has about 70 over 10 meters vessels and only 8 inshore vessels. Approximately half the offshore vessels in the SWFPO are beam trawlers and/or scallop dredgers.

#### 4. Management governance: national and EU and inter-relationships.

The CFP, implemented in 1983, has been reformed three times, in 1992, 2002 and 2013. In each instance, reforms aimed to preserve declining fish stocks. The late 1980s saw the fishing industry become a victim of its own success: high prices for fish landings led the industry to over-invest, which led to overfishing. Some claimed this was exacerbated by EU fishing industry grants, which were seen as a good way to promote regional development. The 2002 review withdrew the grants allocated to build new boats and provided incentives for decommissioning existing vessels. Recovery plans were also adopted in relation to specific threatened species, while management plans were implemented for some other stocks. In addition, a Compliance Scoreboard was published for member states and a code of conduct for responsible fishing was developed. The third CFP came into force on January 1 2003, with the creation of the Regional Advisory Councils (RACs). The RACs include stakeholders split into working groups or focus groups. Focus group methodology is well known in the fisheries fields, serving as advisory boards and stock and impact assessments of European Commission proposals (**Figure 2**).

**Figure 2.** Fisheries management's institutional organisation



Source: Lagière et al., 2012.

On 13 July 2011, the European Commission presented its proposals for the third reform of the EU common fisheries policy (Commission of the European Communities, 2009). These included the implementation of discard bans, explicit reference to Maximum Sustainable

Yield as a management objective, more incentives given to strengthen the regionalisation of management, an increased focus on social sustainability, and the promotion of Transferable Fisheries Concessions (TFC). The fourth Common Fisheries Policy is being implemented during the course of 2014 (European Commission, 2013).

*France.* Management responsibility for French quota involves three main players: The Department for Marine Fisheries and Aquaculture is responsible for allocating and controlling national quotas on behalf of the Ministry of Agriculture and Fisheries. Producer Organisations (POs) are authorized by the Central State (Ministry of Agriculture and Fisheries) to manage sub-quotas. 20 French POs were recognised by the EU in 2010 (14 located on the Atlantic coast). Vessel owners form the third player in this structure, as members or non-members of one of the POs. The adoption of TFC is officially non-applicable in France under the Fisheries act adopted in 1997. The law prevents the transferability of fishing rights, stating that marine resource are common wealth. Moreover, fishing rights allocated by the central authority (the French Ministry of fisheries) to POs or vessels, as sub-quotas per species, are not transferable. In 2006, the legal framework has evolved to give more responsibility to POs (JORF, 2006). Track records per vessel were computed, based on the total landings registered in the years 2001, 2002 and 2003 (Larabi et al., 2013). Pioneer POs have experimented with new fisheries management using individual quotas (IQs), without transferability. One of the first fisheries using IQs has been the sole fishery in the bay of Biscay, with a history of quota over-consumption.

*Ireland.* 86% of the Celtic Sea Herring TAC is allocated to Ireland and the fishery has in recent years been mainly exploited by Ireland. The only other significant players involved in the fishery are Dutch and Dutch owned vessels from France and Germany (Marine Institute, 2012). Management responsibility for the Irish quota rests with the Irish fisheries minister and the relevant staff from the Department of Agriculture, Food and the Marine. However in 2005 a management advisory committee which had been operating on an ad hoc basis since 2001 was officially recognized by the Fisheries Minister. This committee, the Celtic Sea Herring Management Advisory Committee (CSHMAC), although officially only advisory in status, following ministerial recognition, found that most of its advice has been accepted. Therefore the management of the fishery could be considered as an informal version of co-management. The committee consists of representatives of four POs, fishermen, processors, scientists, a marine mammal NGO and control authorities. The CSHMAC makes operational level

decisions such as the length of the season and the size of weekly allocations within that period while the Minister retains control of who has access rights and in certain cases when the fishery will finish. In 2012 the Fisheries Minister introduced a new ruling which restricted access to the fishery for larger vessels based on a track record of landing a defined quantity of fish within a reference period.

*Spain.* In the case of the Basque country, fisheries institutions play a key role in the day-to-day fishing activity. The pelagic fleet is organised under the umbrella of the “*cofradías*”, which are ancient institutions representing fishermen’s (boat owners’ and crew members’) interests, and centralize trading of the fish caught by their members. POs regroup the industrial trawler owners. Their initial role was fish trading, but has evolved to include fishing activity management and the administration of all members’ fishing rights and can even extend to proposing conservation and management measures (e.g. limiting landing quantities of small legally marketable fish to improve prices and sustain the stocks). “*Cofradías*” are now assembled under the umbrella of the PO model in order to access the powers that the EU’s legal framework provides for POs, such as proposing market measures that are extended to other producers. Offshore POs are usually associated with both the South Western Waters RAC, and the North Western Waters RAC. Inshore POs take part in the South Western Waters RAC and the Pelagic RAC.

*UK.* In the UK quota management has been substantially devolved to the POs since the 1980s (Hatcher, 1997). Each year the UK national quotas are allocated to the POs who then have responsibility for allocating quota to the individual vessels they represent and managing quota uptake throughout the year. Until 1999 PO quota allocations were based upon average landings of member vessels over the previous three years, but from 1999 these historical rights were “frozen” as Fixed Quota Allocations (FQAs). The FQA holdings of individual vessels now determine the percentages of the UK quotas which the POs receive each year. Each PO can determine how it chooses to allocate quota amongst its membership, for example using individual quotas (IQs) or monthly landings limits from a common quota pool. For the most part, quota uptake by the inshore (10m overall length and under) fleet as well as those few offshore vessels which do not belong to a PO is managed directly by the national fisheries administrations or their appointed agencies (the *Marine Management Organisation* - MMO - in the case of England and Wales). Most UK POs, including those described in this article, are legally constituted as “mutual” societies (cooperatives) but a few are established as private

companies. Although quota is not explicitly tradeable in the UK, FQA entitlements can be transferred between licences and there is an active in-year lease market for quota which takes advantage of relaxed rules permitting quota exchanges between POs.

## 5. Management measures

In the late 2000s, individual authorisations were expanded in response to quota overconsumption. These fisheries management measures take various forms such as individual quota for the sole fishery (France), limited access for the Celtic Sea Herring fishery (Ireland), individual daily catch limits for mackerel and anchovy (purse seiners, Spain), individual quota for bluefin tuna (purse seiners, Spain), individual transferable quota for the Spanish trawlers, and “fixed quota allocations” for the UK. These management measures have sometimes called for new partnerships between Government and stakeholders (requiring new forms of incentives, capabilities, financial resources, and communication). This section presents various stakeholders’ experiences from past and existing incentives, management measures and their contribution to the sustainability of the fisheries, representing one of the goals within the new Common Fishery Policy.

### *France: Individual quota on sole Fishery*

The Bay of Biscay sole fishery has been under a management plan since 2002. Following a first recovery plan, a multiannual management plan was implemented in 2006 (EC N° 388/2006). The first step of the multiannual management plan in 2008 was the restoration of the stock at a level of precautionary spawning biomass. Following the new framework of the CFP Reform, the Bay of Biscay sole management plan implemented in 2006 will become a Bay of Biscay multi-specific management plan. Quota management by POs mainly relies on a quota pooling system with redistribution among members. POs manage sub-quotas allocated by the member state that correspond to their members’ rights based on the 2001-2003 track records. Following quota constraints, POs have introduced systems of individual landings limits by vessel. This measure was first used by two POs in 2006 in order to avoid penalties for regular over-consumption of their allocated sole sub-quotas (Larabi *et al.*, 2013). In 2011, with the increasing sub-quota constraints, many POs generalised a limitation system on individual landings for at least the main sole producers, the sole gillnetters. The sole fishery in

the Bay of Biscay is commercially exploited by trawlers and gill-netter fleets belonging to one of the nine POs located on the French Atlantic Coast. The 9 POs located on the Atlantic Coast manage 60% of the domestic sole landings. The other major contribution for this species comes from the Eastern Channel fisheries. The interviews highlighted a generalization of the sole sub-quotas' individual management. This situation results from a stronger or tighter constraint due to the lack of resource availability. Six of the nine POs involved in the sole fishery management implemented landings limits per vessel in 2012. However, an individual management system is seldom generalised for all vessels within a PO, but rather is established according to fishing activities or “metiers” (fish-gear associated to target species and fishing grounds) and/or vessel lengths. POs primarily apply individual limits to the larger sole producers, usually the largest sole gillnetters. This system is very limited for some POs owing to the absence of a global monitoring system. For example, the smallest producers for which sole is a by-catch are not concerned with individual limits but receive a global allocation. The criteria adopted for sole sub-quota management vary between POs. A few of them determine limits in proportion to the reference track records (2001-03 production average); some POs allocate quotas according to more recent track record keys, and other POs use maximal production over the last 10 years or a fixed package.

#### *Ireland: Restriction of access*

The area of rights based management represents one of the major problems facing the Irish Celtic Sea Herring fishery (Fitzpatrick, 2014a). Prior to 2012 there was an open access situation in the fishery for vessels under 25 meters in length which had an automatic entitlement to fish for herring. The recent success in rebuilding the stock has resulted in a classic free rider issue with increased numbers of larger vessels booking in to the fishery. Many of these larger vessels had not participated in the fishery for much of the previous decade despite holding valid Celtic Sea Herring licenses. Attempts by the CSHMAC to address this issue in 2010 by specifying a preclusion on whitefish and shellfish fishing for the period of the herring fishery for any vessel booking in did not have the desired effect partly due to difficulties in obtaining timely information from the relevant Department officials. In 2012 a new access policy was published by the fisheries minister, (Dept. Agriculture, Food and Fisheries, 2012), which sought to limit access to vessels which landed Herring between 2006 and 2010. This has resulted in approximately 38 vessels qualifying for access to the

fishery from 2012. Incidentally this is higher than the average participation over the previous 4 years.

### *Spain: Various forms of individualization*

In the case of pelagic species, various forms of individualization of catch limits and fishing rights have been introduced over the last five years. The first step to the introduction of individual limits and rights was the allocation of proportions of the pelagic quotas to fishing techniques. In the case of the mackerel fishery, the national regulation was implemented in 2010 (Orden ARM/271/2010<sup>1</sup>) with the aim of distributing the Spanish catch quota by gear, with 30% of the quota allocated for trawlers, 28% for purse seiners and 35% for artisanal fisheries. For all of them, 7% of the catch should be kept for the second half of the year. Landing limits have been considered for the mackerel fishery in recent years. In 2009 daily limits<sup>2</sup> within top-down hierarchical management by the Spanish administration were introduced. However, these limits were initially proposed by the PO concerned (i.e. OP Cantabrico), as extension norms for all POs involved in the fishery. The limits impose a constraint on catches and are not allocated on the basis of catch records. They are not transferable amongst vessels. Landings limits on anchovy are adopted within the *cofradías* and are usually respected by fishermen. It seems that these moral/social incentives are widely accepted because of the perceived legitimacy of the group's decisions. The rationale for the landings cap is both an improvement of the anchovy price, and a protection of the resource. The collapse and closure of the anchovy fishery that occurred in 2004 seems to have triggered conservation measures and respect of group decisions. According to fishermen, the strategy to limit landings results in better prices (although not as good as initially expected). There are other factors that contribute to this. In 2008, a system of individual quotas for blue-fin tuna was introduced. The national quota was divided among diverse fishing techniques, including purse seining. Within each technology vessels receive individual quotas. According to the regulation in force (ARM/1753/2011<sup>3</sup>) these can be pooled within a given fishermen's

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<sup>1</sup> Orden ARM/271/2010, de 10 de febrero, por la que se establecen los criterios para el reparto y la gestión de la cuota de caballa, y se regula su captura y desembarque.

<sup>2</sup> Orden ARM/2091/2008. In 2011, the Spanish administration introduced new daily limits by vessels.

<sup>3</sup> Orden ARM/3315/2010, de 21 de diciembre, por la que se modifica la Orden ARM/271/2010, de 10 de febrero, por la que se establecen los criterios para el reparto y la gestión de la cuota de caballa, y se regula su captura y desembarque



organization, being also tradable amongst the diverse Spanish fishing technologies e.g. from purse seiners to tuna farms. In this case self-management is adopted under the PO umbrella. For instance, in 2012, 70% of the rights allocated to purse seiners fishing with live bait in the Bay of Biscay were transferred to a Spanish company in the Mediterranean, which carries out tuna farming (Anon. 2012). In 2013, the total fishing quota was temporarily transferred (just for that year) to a Spanish tuna farmer in the Mediterranean. In relation to the offshore fleet, in July 1997, the ministry passed Law 23/1997<sup>4</sup> that allows free trade of rights among companies owning vessels in the same list, without transferring the ownership of the vessel. In December 2006, the Order APA 3773/2006<sup>5</sup> established a system of ITQs for vessels over 100 GRT operating in ICES areas Vb, V, VII and VIIIa,b,d,e. This system was made permanent through the Order ARM/3812/2008<sup>6</sup>.

#### *UK: Mixed views on quota trading*

In the UK there are mixed views on quota trading and this is to some extent reflected in the differences between POs in the way in which quota is allocated internally. In Scotland, for example, many of the PO administrations continue to take a strong position against quota trading and operate quota pools for all stocks. In England and Wales, more POs operate IQ systems for at least some stocks and some vessels. In the South West, the CFPO has adopted what is commonly known as a “pool-plus” system, whereby quota is pooled but individual vessels are able to supplement their monthly landings limits from the pool with quota leased privately from other vessels. Where vessels have acquired additional FQA units, these effectively give rise to IQs. The SWFPO operates IQs for most of its membership, although a group of smaller inshore vessels do work within a quota pool. Many UK POs operating quota pools hold some FQAs centrally (on so-called “dummy” licences) which are used for the benefit of the membership as a whole. Both the CFPO and, to a lesser extent, the SWFPO, have invested in FQAs in order to secure additional quota for the membership as a whole. The CFPO also holds FQAs acquired by the *Dutchy Fish Quota Company* which aims to secure

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<sup>4</sup> Ley 23-1997 reguladora de la pesca de altura en el Atlántico Nordeste.

<sup>5</sup> ORDEN APA/3773/2006, de 7 de diciembre, por la que se establecen para el año 2007, las condiciones de distribución y gestión de las cuotas asignadas a España de especies demersales, en aguas comunitarias no españolas, de las subzonas V b, VI, VII y VIII a, b, d, e del Consejo Internacional para la Exploración del Mar.

<sup>6</sup> ORDEN ARM/3812/2008, de 23 de diciembre, por la que se establecen las condiciones de distribución y gestión de las cuotas asignadas a España de especies demersales, en aguas comunitarias no españolas, de las subzonas Vb, VI, VII y VIIIa,b,d,e del Consejo Internacional para la Exploración del Mar.

quota for the benefit of fishermen in Cornwall. Both POs assist their members with quota trading where required, for example by arranging exchanges (“swaps”) with other UK POs via the Marine Management Organisation (MMO), but are not otherwise actively involved in quota trading: there are a number of private companies which act as brokers in this market. Although day-to-day management decisions are taken by the PO offices, decisions on quota management approaches are taken by elected representative boards or at general meetings.

## 6. Management progress;

Collecting information on fisheries management measures requires the implementation of both qualitative (Silverman, 2010) and quantitative techniques. This paper, however, relates only to the former. Firstly, semi-structured face-to-face interviews with fishermen's representatives were used to analyse fisheries governance issues, such as centralized or decentralized processes, relationships between local, national and European Government with stakeholders, the role of the Regional Advisory Councils (RACs), among others. Secondly, focus groups with fishermen were used to examine issues related to fisheries management measures and more importantly, issues related to fishermen's behaviour, in particular compliance behaviour. The main reason for the interview/focus group structure is the fact that fishermen usually take part in the decision process via their representative's participation in RACs and/or other forums, which makes it more difficult or easier for the fishermen/representatives to speak freely about governance issues. Each western waters case study selected the most appropriate technique (semi-structured interviews or focus groups, or both) for collecting qualitative information on stakeholders' (mainly fishermen's representatives or fishermen) perceptions of past and existing fisheries management measures.

Semi-structured face-to-face interviews were organized to examine the French Producers organizations managing the sole fishery in the Bay of Biscay. For the Irish fleets targeting the Celtic Sea Herring fishery, face-to-face semi-structured interviews were conducted simultaneously with choice experiment surveys. Additionally meetings of the management advisory committee were attended as a research observer. In the Basque case study, interviews were organized with local fishermen representatives, while focus groups were organized with both local fishermen and local scientists. Information on devolved quota management in South West England was obtained through semi-structured interviews with representatives of the two Producers' Organisations (POs) which are responsible for the majority of fishing vessels in the region.

### **France**

Semi-structured, face-to-face interviews were carried out with official representatives of all 9 French POs concerned with the sole fishery in the Bay of Biscay in June and July 2012 (Lagière et al. 2013). Limitations to fisheries access have changed fishing behaviour in

several main ways. The stakeholders interviewed declared that fishing effort reallocation has occurred as a result of individualisation of landings, and/or sole production is more frequently spread over the year. Other changes relate to a reduced number of days at sea for the most specialised gillnetters. Some exits from the industry or from sole fishery have been registered. Another crucial issue addresses fishermen. Crew members are more attracted to vessels owning the largest share of sole sub-quotas. Hence some POs are confronted with a deck-hand turnover between members. These interviews showed that compliance with sub-quotas and national quota is possible by strengthening the monitoring and management system of the fishery and by more individualised production management within POs.

## **Ireland**

How fishermen will respond to this access change and whether it will result in rationalization or consolidation of fishing rights is still uncertain, as the new policy has only been implemented since 2012. Information from PO representatives indicates that there is a growing appetite for tradeable licences within the fishery. A choice experiment survey conducted in this fishery in 2013 (Fitzpatrick *et al*, 2014b) indicates however that the majority of fishermen involved in the fishery are opposed to such tradeability. The access restriction itself created some conflict between fishermen as some felt that they were unfairly excluded from a fishery due to not participating when stocks were low. Another area where there has been an attempt to strengthen rights based management has been in the establishment of the sentinel fishery which has a twofold aim. Firstly to safeguard the interests of small scale fishing vessels by setting aside a fixed allocation of the quota and secondly to enhance the scientific knowledge base by allowing smaller vessels to fish inside an otherwise closed area and ensuring that scientists receive samples of catch from that area. The sentinel fishery is still an open access fishery for vessels under 10 meters and there are fears that the 2012 access restriction will produce an increase in participation in the sentinel fishery despite the limited quota available.

## **Spain**

In the case of individual daily limits for mackerel stock, several elements have promoted non-compliant behavior from some vessel segments, following information derived from focus groups: (i) fishermen's expert knowledge on good mackerel stock status, (ii) the high level competition between purse-seiners, trawlers, and even the artisanal fleet for the mackerel stock, (iii) the seasonal character of the fishery and, (iv) the low level first-sale prices. With

the aim of achieving good results in terms of the sustainability of this fishery, a new complementary and coercive top-down management by the Spanish administration was introduced, namely, a reinforced control system at ports. Thus, compliance and sustainability are possible only under coercive management. For the anchovy stock, managed by individual daily limits, the purse seine fleet is the only one that targets anchovy, hence the lack of incentive to compete for the resource. In relation to the market, the Bay of Biscay anchovy enjoys a well established reputation among consumers; this seems to protect the price from competition from anchovy imports. Finally, this measure provides correct incentives and contributes to the fishery's sustainability. In the case of IQs for blue-fin tuna, the role of the PO is perceived by the sector as very positive, having contributed to the success of this management system. In spite of this, fishermen do not think this experience could be applied to other fisheries in the Basque Country. The fourth experience concerns ITQs for hake, megrim and anglerfish. The offshore sector agrees with the ITQ system but claims that the roots of the sector's problem can be found in the initial allocation of the national share by the European Commission. The failures of the *relative stability* principle are argued as one of the main reasons for fishermen's behavior. Issues related to ITQ transfers among PO associates, among other issues, are organized through the PO concerned.

## UK

UK fishermen can join any PO in any part of the country, however, so that although most POs do have a strong regional identity, members are often attracted by the quota management systems or specialisations offered by the PO. Thus, for example, the SWFPO membership includes beam trawlers and scallop dredgers from outside the Southwest, even Scotland. Although there is an active FQA/quota market in the UK, and fishing firms routinely use the money value of FQAs as security for bank loans, the legal position is that FQAs are not private property in law. This was tested recently in a UK High Court judgement which found that Government had the right to allocate FQAs as it saw fit, without financial compensation, and that fishing firms had no "legitimate expectation" that the rights conferred by FQAs amounted to possession. This is despite the fact that FQAs had been adjusted to reflect private quota trades three times (in 2001, 2005 and 2011).<sup>7</sup>

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<sup>7</sup> "High Court Spells Out Quota Rights", *Fishing News*, 26 July 2013, p.2.

## 7. Discussion

Table 3 compares various co-management processes in the Western waters based on Sen and Nielsen's typology (Table 1). The sole fishery exploited by the French fleets (trawlers and netters) has been managed under individual quotas since 2006, with authority devolved from the State to POs. It is a decentralized procedure by delegation (co-management by delegation) from the French State with different regimes applied by POs depending on the local profiles of fishermen (specific rules for sharing the sole quota). Where fishermen have accepted this new regime for solving seasonal over-consumption of collective quota for sole, other controversial situations have occurred. Reallocating the fishing effort on other stocks is very limited. Securing attractiveness of the sole fishery is a crucial issue for fishermen and their representatives via POs and scientists.

The Irish Celtic Sea Herring fishery is currently managed as a partnership between an officially recognised, industry-led advisory committee, the Celtic Sea Herring Management Advisory Committee (CSHMAC) and the government. The CSHMAC makes operational level decisions such as the length of the season, the size of weekly allocations within that period and makes recommendations on issues such as how the quota should be allocated between fleet sectors and the definition of areas where fleet sectors may operate. The minister has the final say on these issues and critically retains decision making power over the issue of who has access rights.

Basque purse seiner fisheries are managed under a centralized regime via the Spanish State. This centralized regime is combined with self-management for quota pooling in the particular case of the bluefin tuna, and therefore the system can be best characterized as co-management by partnership. A specific scheme is applied for the anchovy fishery, where daily limits are adopted and managed within the "*cofradía*" as self-management. Traditional top-down hierarchical management by the state is applied to the mackerel fishery. In this last case, fishermen's behavior is subjected to strong control. For other fisheries regulations compliance contributes to the success of the management measures. Regarding Basque trawlers, the ITQ system comes from a centralized regime except for some issues. Pooling ITQs are organized

within the corresponding PO under a self-management regime which contributes to the success of this fishery, with high regulatory compliance by fishermen. Again, this system can be considered to be “co-management by partnership”.

The English FQA/PO system can be best characterised as “co-management by partnership” since, given the quota allocation system decided at central government level the POs have a considerable degree of flexibility to manage quota at the local/sectoral level. It is important to appreciate that enforcement remains the task of Government while the ability to trade quota is restricted in the sense that permanent changes in quota “ownership” are still a relatively minor part of the overall trading activity.

Table 3. A comparative approach of co-management in the Western Waters case studies

Sub-case	Fleet	List of management measures	Who are the local/regional managers?	Type of co-management
The French fleets	Bottom trawlers	IQs on sole since 2006	Government has delegated to POs the introduction of individual quotas as a new tool for fisheries management	Co-management by delegation
	Gill-netters			
The Spanish fleets	Purse-seiners	Individual daily limits by vessel for mackerel stock.	Initially proposed by the PO concerned (i.e. OP Cantabrico) Management by the state (Spanish Government)	Top-down hierarchical management
		Individual daily limits on anchovy landings.	Adopted within the “ <i>cofradías</i> ”	Self-management
		IQs for blue-fin tuna	Management by the state (Spanish Government) and pooling quotas organized within the POs (transferability)	
	Trawlers	ITQs have been used in the hake, megrim and anglerfish fisheries and scrapping subsidy		
The Irish fleets	Polyvalent trawlers	Limited access, weekly quotas, spatial fishing rights based on vessel size.	Partnership between CSHMAC (PO’s, fishermen, processors, NGO, fisheries control officer, scientist) and government.	Co-management by partnership
	The sentinel fishery	Weekly quotas, fishing in area, spatial fishing rights based on vessel size.		
The English fleets	Trawlers/netters	FQAs as a basis for PO allocations: IQs or monthly allowances (or both) within individual POs	POs manage allocations from central Government	
	Beam trawlers/dredgers	FQAs as a basis for PO allocations: IQs or monthly allowances (or both) within individual POs		



One of the major recent trends in the European fishing sector has been the increasing role of the fishermen's cooperatives (e.g. Producer Organizations – POs) in quota management. Various forms of co-management have been used, by delegation, by partnership, through self-management procedure or top-down hierarchical management.

In France, the Central Administration has gradually transferred the allocation quota procedures between fishermen to local level. In view of quota over-consumption situations, POs have had to introduce new rules within their organisations to impose limitations on individual consumption by species. In Spain this trend has been noted in the context of purse-seiners where “*cofradías*” are able to manage anchovy on the basis of daily limits. In turn, blue-fin tuna are managed at the PO level on the basis of individual quota pooling. In the case of trawling, POs also manage the transferability of the ITQs. The Celtic Sea Herring fishery represents a fairly unique situation in Ireland as the local management committee has a strong input to quota management decisions while in other Irish fisheries quota management has not been devolved to the PO's. The introduction of a more defined restricted access regime in the main fishery has resulted in the issue of nationally-tradable quotas being discussed more frequently. In the UK, devolved management of quotas has a long history and the system of PO quota management is now well established. While differences remain between POs in the extent to which the market is permitted to play a role in their internal quota allocation, all POs now find they must allow some quota trading by their members. Whether the UK will follow the Netherlands and Denmark in moving any closer to an ITQ system proper (with continued PO responsibility) is unclear.

## 8. Conclusion

Several changes in the governance of quotas and the economic context have marked this recent period. Faced with increasing restrictions on accessing fish stocks, various new management measurements have been introduced, including individualizing fishing rights, access limits and other specific measures. The main issues arising for the WW from the latest CFP reform concern the implementation of landings obligations (discard bans). It remains to be seen how these will be introduced into the WW fisheries but the devolved flexibility of quota allocation within the POs is likely to play an important role in matching catch and quota

holdings. The implementation of these individual fishing rights schemes and other limited access regimes reflect the European debate on transferable fishing concessions within the CFP third reform. It would be a legitimate question to ask whether public leasing on the level of fishermen cooperatives would be a sustainable system for the WW fisheries or whether the recently implemented system is on a “slippery slope” towards market privatization. It is too early to predict how attitudes and perceptions with regard to quota trading and compliance may change as the discard bans start to be put in place. We should perhaps highlight the fact that solving the discard problem may require a more flexible approach such as quota swaps between POs of different member states.

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